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Refine Search

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Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L4	l1 same l2 same l3	29	L4
L3	lysine or arginine	47874	L3
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Search Results - Record(s) 1 through 10 of 29 returned.

☐ 1. Document ID: US 6723843 B2

L4: Entry 1 of 29 File: USPT Apr 20, 2004

US-PAT-NO: 6723843
DOCUMENT-IDENTIFIER: US 6723843 B2

TITLE: Oligosaccharide synthesis

L4: Entry 1 of 29 File: USPT Apr 20, 2004

DOCUMENT-IDENTIFIER: US 6723843 B2
TITLE: Oligosaccharide synthesis

Other Reference Publication (4):
Bycroft et al.. "A Novel Lysine-protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides", J. Chem. Soc., Chem. Commun., 778-779, 1993.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw De

☐ 2. Document ID: US 6676946 B2

L4: Entry 2 of 29 File: USPT Jan 13, 2004

US-PAT-NO: 6676946
DOCUMENT-IDENTIFIER: US 6676946 B2

TITLE: Multiple antigen glycopeptide carbohydrate vaccine comprising the same and use thereof

L4: Entry 2 of 29 File: USPT Jan 13, 2004

DOCUMENT-IDENTIFIER: US 6676946 B2
TITLE: Multiple antigen glycopeptide carbohydrate vaccine comprising the same and use thereof

Detailed Description Text (160):
The Tn antigens .alpha.-GalNAc-Ser-Thr) were synthesized by classical methods (Lemieux et al. (1979), Ferrari et al. (1980)). Syntheses of the MAG:Tn-PV, MAP:PV, Tn-PV, and PV were performed by the solid phase methodology using the FMOC chem

istry as described previously (Bay et al. (1997)). After attachment of the .beta.-alanyl spacer to the Wang resin, the lysine core was assembled by coupling successively two levels of FMOC-Lys-(FMOC)OH, providing four amino groups. The lysine core was further elongated by the protected amino acid, of the T-epitope sequence of the poliovirus (KLFAVWKITYKDT), SEQ ID No: 4), to produce the MAP:PV. Ultimately, the .alpha.-GalNAc-Ser was incorporated to the four branches peptide, which gave the MAG:Tn-PV construct after deprotection and cleavage from the resin, as reported previously (Bay et al. (1997)). All of the final constructs were purified by reverse-phase high-performance to liquid chromatography and were characterized by amino acid analysis and electrospray mass spectrometry. The Tri.sub.3 -TT glycopeptide [Ser(.alpha.GaINAc)-Thr(.alpha.-GaINAc)-Thr(.alpha.-GaINAc)-QYIKANSKFIGITE L), (SEQ ID NO: 1), was prepared by incorporation, step by step, of the appropriate peracetyl-glycosylated FMOC-Ser Thr in the peptide sequence using 2-(1H-benzotriazole-1-yP)-1,1,3,3 tetramethyluronium tetrafluoroborate/N-hydroxybenzotriazole (TBTU/HOBT) as the coupling reagent. Deacetylation of the sugar residue of the glycopeptide was achieved with a catalytic amount of sodium methoxide in methanol at pH 11. The crude product was purified by high-performance liquid chromatography (Bay et al. (1997)) with a gradient from 10 to 35% and 14.74-min retention time. electrospray mass spectrometry: 2623 (calculated, 2623:56). Amino acid analysis: Ala, 1 (1); Asp, 1.04 (1); Glu, 2.16 (2); Gly, 1.08(1); Ile, 2.95 (3); Leu, 1.1 (1): Lys, 2.04 (2); Phe, 1.01(1); Ser 1.86(2); Thr, 2.76(3); and Tyr 0.97(1).

☐ 3. Document ID: US 6670181 B2

L4: Entry 3 of 29 File: USPT Dec 30, 2003

US-PAT-NO: 6670181
DOCUMENT-IDENTIFIER: US 6670181 B2

TITLE: Compositions and methods for treating viral infections

L4: Entry 3 of 29 File: USPT Dec 30, 2003

DOCUMENT-IDENTIFIER: US 6670181 B2
TITLE: Compositions and methods for treating viral infections

Detailed Description Text (72):
Butyloxycarbonyl-S-4-methylbenzyl-L-cystine coupled to polystyrene using dicyclohexylcarbodiimide with a catalytic amount of 4-N,N-dimethylaminopyridine was used as the solid-phase support for the synthesis. The amino groups were protected with tert-butyloxycarbonyl (t-BOC) and the side chain protecting groups were as follows: benzyl ether for the hydroxyl of serine, dichlorobenzyl ether for the phenolic hydroxyl of tyrosine, and the beta benzyl-esters were used for the carboxyl groups on glutamic acid and aspartic acid, respectively. Trifluoroacetic acid (40% in CH.sub.2 Cl.sub.2) was used to remove t-BOC and the resulting salt was neutralized with N-diisopropylethylamine (10% in CH.sub.2 Cl.sub.2). Diisopropylcarbodiimide was used to couple the t-BOC amino acids. The protecting groups were removed and the peptide was cleaved from the resin at 0.degree. degrees C. with anhydrous hydrogen fluoride containing 10% anisole and 1% ethanedithiol as scavengers. The hydrogen fluoride reagent was removed under vacuum at 0.degree. C. and the peptide then was precipitated and washed with anhydrous ether. After extraction of the peptide from the resin with trifluoroacetic acid, the solvent was

evaporated to 15.degree. C. and the peptide was again precipitated with ether. The ether was decanted after centrifugation and the pellet was dissolved in 5% acetic acid with 6 M guanidine HCl. This solution was desalted on a BioGel P2 column equilibrated in 5% acetic acid and the peptide containing fractions were pooled and lyophilized. A cysteine residue was added to the carboxyl terminus of the peptide as needed to provide a functional SH group for the coupling of the peptide to carrier proteins or to a solid support for EIA procedures or to MDP (Example 5). When multiple repeats of the peptide were desired, synthesis was conducted by first attaching a cysteine residue to the resin support. Carbon spacers of various lengths were added; the choice of spacer length varied and was dependent on the application, peptide charge and length and steric influences predicted from preliminary data resulting from peptide attachments to supports. A six carbon spacer such as 6-aminohexanoic acid was first attached with lysine-(lysine)2-(lysine)4 additions as described above with diaminoethane in Example 5 but altering the sequence of protective group blocking. Amino groups were protected and then deprotected to permit two lysine residues to attach to the deprotected amino terminus, deprotection followed by lysine addition built a branched chain structure for peptide synthesis. Peptides with specific biological function or with sequences that are susceptible to enzymatic degradation were modified by the addition of D-amino acids. One particularly useful addition is the addition of L-alanine-D-isoglutamine with the peptide of interest synthesized off of the NH2 terminus of D-lsoglutamine. In another arrangement, the peptide was synthesized with L-Lysine-L-Lysine-peptide-D-isoglutamine. The carboxy terminal lysine groups are highly susceptible to enzyme degradation by many enzymes in the micro environment while D-isoglutamine both results in an increase in half life of the peptide and provides a hydrophobic site to assemble peptides that require amphipathic properties to elicit a function such as receptor binding and immune induction through MHC associated events. A tyrosine residue was added to the amino terminus for radioactive labeling with .sup.125 Iodine to determine peptide-to-carrier protein coupling efficiency and to identify the peptide during purification. .sup.125 I also provided a tracer to follow the half life of the peptide in biological systems and evaluate receptor binding when peptide function was not affected by tyrosine addition.

☐ 4. Document ID: US 6582700 B1

L4: Entry 4 of 29 File: USPT Jun 24, 2003

US-PAT-NO: 6582700
DOCUMENT-IDENTIFIER: US 6582700 B1

TITLE: Linear antigen supporting units

L4: Entry 4 of 29 File: USPT Jun 24, 2003

DOCUMENT-IDENTIFIER: US 6582700 B1
TITLE: Linear antigen supporting units

Brief Summary Text (12):
In an effort to address this problem, multiple antigen carrying structures were developed. Such structures are known and available commercially under the name Multiple Antigen Peptide System (MAPS). A small peptidyl core matrix is utilized bearing radially branching synthetic peptides as dendride arms. These molecules are produced by solid phase peptide synthesis beginning with three or four lysine

residues which have only one kind of side chain-protecting group. Upon deprotection both amino groups are freed and a new similarly protected lysine derivative is condensed to the two free amino groups. This produces a branch chain with up to eight free amino groups which can then be used to synthesize directly onto the scaffolding the desired antigen which is usually a relatively short peptide. These structures are typically subject to steric crowding, presenting disadvantages for synthesis, which suppress yields and lead to solutions of dendritic polymers with variable numbers of side chains. The practical limit for the MAPS approach is to include about 4 to 8 side chains, typically presenting the identical antigen. Moreover, the relatively tight steric crowding of side chains can interfere with antigen presentation.

☐ 5. Document ID: US 6573337 B1

L4: Entry 5 of 29 File: USPT Jun 3, 2003

US-PAT-NO: 6573337
DOCUMENT-IDENTIFIER: US 6573337 B1
**** See image for Certificate of Correction ****

TITLE: Oligosaccharide synthesis

L4: Entry 5 of 29 File: USPT Jun 3, 2003

DOCUMENT-IDENTIFIER: US 6573337 B1
**** See image for Certificate of Correction ****
TITLE: Oligosaccharide synthesis

Other Reference Publication (10):
Bycroft et al.. "A Novel Lysine-protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides," J. Chem. Soc., Chem. Commun., 778-779, 1993.

☐ 6. Document ID: US 6548636 B2

L4: Entry 6 of 29 File: USPT Apr 15, 2003

US-PAT-NO: 6548636
DOCUMENT-IDENTIFIER: US 6548636 B2

TITLE: Sulfated CCR5 peptides for HIV-1 infection

L4: Entry 6 of 29 File: USPT Apr 15, 2003

DOCUMENT-IDENTIFIER: US 6548636 B2
TITLE: Sulfated CCR5 peptides for HIV-1 infection

Detailed Description Text (79):
The above compounds can be produced by various methods known to those skilled in the art, including but not limited to the following. Methods for producing synthetic multimeric peptides such as multiple antigen peptides, synthetic polymeric constructs, and branched lysine oligopeptides are well known to those skilled in the art (Spetzler and Tam, Int. J. Pept. Prot. Res. 45:78, 1995; Yai et al., J. Virol., 69:320, 1995; Okuda et al., J. Mol. Recognit. 6:101, 1993). For example, radially branched peptides can be produced by performing standard solid-phase peptide synthesis methods using branched lysine skeletons on 4-(oxy-methyl)-phenylactamidomethyl or other suitable solid resin. Peptide chains are elongated in parallel in a stepwise fashion using optimized t-butyloxycarbonyl/benzyl chemistry as described (Sabatier et al., Biochemistry 32:2763, 1993). Peptides are liberated from the resin, purified by reversed-phase chromatography over a C18 or other suitable column and characterized by analytical HPLC and mass spectroscopy. In another approach, monomeric peptides are synthesized, purified, and then covalently coupled to lysine copolymers using N-succinimidyl maleimido carboxylate chemistry. In another approach, the peptides can also be made in the form of affinity type multimers. For example, peptides may be synthesized with an affinity tag such as biotin. These affinity tagged peptides can then be mixed with affinity ligands capable of binding multimerically, such as streptravidin. Other site-specific ligation chemistries are known to the skilled artisan.

☐ 7. Document ID: US 6462183 B1

L4: Entry 7 of 29 File: USPT Oct 8, 2002

US-PAT-NO: 6462183
DOCUMENT-IDENTIFIER: US 6462183 B1
**** See image for Certificate of Correction ****

TITLE: Protected aminosugars

L4: Entry 7 of 29 File: USPT Oct 8, 2002

DOCUMENT-IDENTIFIER: US 6462183 B1
**** See image for Certificate of Correction ****
TITLE: Protected aminosugars

Other Reference Publication (7):
Bycroft et al., "A Novel Lysine-protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides", J. Chem. Soc., Chem. Commun., 778-779, 1993.

☐ 8. Document ID: US 6419933 B1

L4: Entry 8 of 29 File: USPT Jul 16, 2002

US-PAT-NO: 6419933
DOCUMENT-IDENTIFIER: US 6419933 B1

TITLE: Compounds and methods for the detection and prevention of T.cruzi infection
L4: Entry 8 of 29 File: USPT Jul 16, 2002

DOCUMENT-IDENTIFIER: US 6419933 B1
TITLE: Compounds and methods for the detection and prevention of T.cruzi infection

Detailed Description Text (90):
The four immunoreactive T. cruzi epitopes PEP-2, TcD, TcE and TcLo1.2 may also be linked into one reagent by the use of a `branched` peptide originating from a lysine core residue. Orthogonal protection of the lysine, for example employing 9-Fluorenylmethoxycarbonyl (Fmoc) on the .alpha.-amino group and 1-(4,4-Dimethyl-2,6-dioxocyclohex-1-ylidene)ethyl (Dde) on the .epsilon.-amino group, is used to permit selective deprotection of one amino group in the presence of the other, thereby allowing the synthesis of the first peptide chain from either the .alpha.- or .epsilon.-group on the lysine. This first peptide chain is terminated with a protecting group that is not removed during the course of the synthesis of the second peptide chain. For example, a tert-Butoxy carbonyl (Boc) amino acid could be used with the Dde and Fmoc combination. The remaining lysine amino protecting group is then removed before a second amino acid chain is synthesized from the second amino moiety. For example, .epsilon.-Dde is removed with 20% hydrazine. Cleavage of the branched peptide from a solid support and removal of the N-.alpha.-Boc moiety is carried out using trifluoroacetic acid, following standard protocols. Using this approach two independent amino acid sequences can be built from a `core` lysine residue, as shown below, thus allowing various combinations of TcD, TcE, PEP2, TcLo1.2, and other epitopes to be coupled to the core residue. Purification of the resulting peptide is performed as described in Example 2. ##STR1##

☐ 9. Document ID: US 6335017 B1

L4: Entry 9 of 29 File: USPT Jan 1, 2002

US-PAT-NO: 6335017
DOCUMENT-IDENTIFIER: US 6335017 B1

TITLE: Compositions and methods for treating viral infections
L4: Entry 9 of 29 File: USPT Jan 1, 2002

DOCUMENT-IDENTIFIER: US 6335017 B1
TITLE: Compositions and methods for treating viral infections

Detailed Description Text (87):
Diisopropylcarbodiimide was used to couple the t-BOC amino acids. The protecting groups were removed and the peptide was cleaved from the resin at 0.degree. degrees C. with anhydrous hydrogen fluoride containing 10% an sole and 1% ethanedithiol as scavengers. The hydrogen fluoride reagent was removed under vacuum at 0.degree. C. and the peptide then was precipitated and washed with anhydrous ether. After

extraction of the peptide from the resin with trifluoroacetic acid, the solvent was evaporated to 15.degree. C. and the peptide was again precipitated with ether. The ether was decanted after centrifugation and the pellet was dissolved in 5% acetic acid with 6 M guanidine HCl. This solution was desalted on a BioGel P2 column equilibrated in 5% acetic acid and the peptide containing fractions were pooled and lyophilized. A cysteine residue was added to the carboxyl terminus of the peptide as needed to provide a functional SH group for the coupling of the peptide to carrier proteins or to a solid support for EIA procedures or to MDP (Example 5). When multiple repeats of the peptide were desired, synthesis was conducted by first attaching a cysteine residue to the resin support. Carbon spacers of various lengths were added; the choice of spacer length varied and was dependent on the application, peptide charge and length and steric influences predicted from preliminary data resulting from peptide attachments to supports. A six carbon spacer such as 6-aminohexanoic acid was first attached with lysine- (lysine)2-(lysine)4 additions as described above with diaminoethane in Example 5 but altering the sequence of protective group blocking. Amino groups were protected and then deprotected to permit two lysine residues to attach to the deprotected amino terminus, deprotection followed by lysine addition built a branched chain structure for peptide synthesis. Peptides with specific biological function or with sequences that are susceptible to enzymatic degradation were modified by the addition of D-amino acids. One particularly useful addition is the addition of L-alanine-D-isoglutamine with the peptide of interest synthesized off of the NH.sub.2 terminus of D-Isoglutamine. In another arrangement, the peptide was synthesized with L-Lysine-L-Lysine-peptide-D-Isoglutamine. The carboxy terminal lysine groups are highly susceptible to enzyme degradation by many enzymes in the micro environment while D-isoglutamine both results in an increase in half life of the peptide and provides a hydrophobic site to assemble peptides that require amphipathic properties to elicit a function such as receptor binding and immune induction through MHC associated events. A tyrosine residue was added to the amino terminus for radioactive labeling with .sup.125 Iodine to determine peptide-to-carrier protein coupling efficiency and to identify the peptide during purification. .sup.125 I also provided a tracer to follow the half life of the peptide in biological systems and evaluate receptor binding when peptide function was not affected by tyrosine addition.

☐ 10. Document ID: US 6329506 B1

L4: Entry 10 of 29 File: USPT Dec 11, 2001

US-PAT-NO: 6329506
DOCUMENT-IDENTIFIER: US 6329506 B1

TITLE: Template-assisted triple helical collagen-like structures

L4: Entry 10 of 29 File: USPT Dec 11, 2001

DOCUMENT-IDENTIFIER: US 6329506 B1
TITLE: Template-assisted triple helical collagen-like structures

Brief Summary Text (11):
Roth, W. et al. (1980) Biopolymers 19:1909-1917 has used lysine dimers and 1,2,3-propane carboxylic acid to prepare covalently bridged synthetic collagen model peptides which were found to assemble into a triple helix. Fields, C. G. et al.

(1993) Biopolymers 33:1695-1707, and Tanaka, T. et al. (1993) FEBS 13257 334 (3) :272-276, have used two consecutively connected lysine residues with three functional amino groups to link three peptide chains at the C-termini or the N-termini. Fields et al. report the formation of thermally stable collagen-like polypeptide sequences in triple helical conformation by a solid phase procedure wherein three collagen-like peptide strands were synthesized in parallel from an origin at adjacent amine groups at the C-terminal. The branching of the peptide chains is reported to ensure the proper alignment or register of the chains in the triple helical polypeptide as they would be in native collagen.

Term	Documents
(1 SAME 3 SAME 2).USPT.	29
(L1 SAME L2 SAME L3).USPT.	29

Hit List

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Search Results - Record(s) 11 through 20 of 29 returned.

☐ 11. Document ID: US 6316595 B1

L4: Entry 11 of 29 File: USPT Nov 13, 2001

US-PAT-NO: 6316595
DOCUMENT-IDENTIFIER: US 6316595 B1
**** See image for Certificate of Correction ****

TITLE: PNA synthesis using a base-labile amino protecting group

L4: Entry 11 of 29 File: USPT Nov 13, 2001

DOCUMENT-IDENTIFIER: US 6316595 B1
**** See image for Certificate of Correction ****
TITLE: PNA synthesis using a base-labile amino protecting group

Other Reference Publication (15):
Bycroft et al., "A Novel Lysine-Protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides", J. Chem. Soc., Chem. Commun., pp. 778-779 (1993).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 12. Document ID: US 6258599 B1

L4: Entry 12 of 29 File: USPT Jul 10, 2001

US-PAT-NO: 6258599
DOCUMENT-IDENTIFIER: US 6258599 B1

TITLE: Compositions and methods for treating viral infections

L4: Entry 12 of 29 File: USPT Jul 10, 2001

DOCUMENT-IDENTIFIER: US 6258599 B1
TITLE: Compositions and methods for treating viral infections

Detailed Description Text (78):
Butyloxycarbonyl-S-4-methylbenzyl-L-cystine coupled to polystyrene using dicyclohexylcarbodiimide with a catalytic amount of 4-N,N-dimethylaminopyridine was used as the solid-phase support for the synthesis. The amino groups were protected

with tert-butyloxycarbonyl (t-BOC) and the side chain protecting groups were as follows: benzyl ether for the hydroxyl of serine, dichlorobenzyl ether for the phenolic hydroxyl of tyrosine, and the beta benzyl-esters were used for the carboxyl groups on glutamic acid and aspartic acid, respectively. Trifluoroacetic acid (40% in CH.sub.2 Cl.sub.2) was used to remove t-BOC and the resulting salt was neutralized with N-diisopropylethylamine (10% in CH Cl.sub.2). Diisopropylcarbodiimide was used to couple the t-BOC amino acids. The protecting groups were removed and the peptide was cleaved from the resin at 0.degree. degrees C. with anhydrous hydrogen fluoride containing 10% anisole and 1% ethanedithiol as scavengers. The hydrogen fluoride reagent was removed under vacuum at 0.degree. C. and the peptide then was precipitated and washed with anhydrous ether. After extraction of the peptide from the resin with trifluoroacetic acid, the solvent was evaporated to 15.degree. C. and the peptide was again precipitated with ether. The ether was decanted after centrifugation and the pellet was dissolved in 5% acetic acid with 6 M guanidine HCl. This solution was desalted on a BioGel P2 column equilibrated in 5% acetic acid and the peptide containing fractions were pooled and lyophilized. A cysteine residue was added to the carboxyl terminus of the peptide as needed to provide a functional SH group for the coupling of the peptide to carrier proteins or to a solid support for EIA procedures or to MDP (Example 5). When multiple repeats of the peptide were desired, synthesis was conducted by first attaching a cysteine residue to the resin support. Carbon spacers of various lengths were added; the choice of spacer length varied and was dependent on the application, peptide charge and length and steric influences predicted from preliminary data resulting from peptide attachments to supports. A six carbon spacer such as 6-aminohexanoic acid was first attached with lysine- (lysine)2-(lysine)4 additions as described above with diaminoethane in Example 5 but altering the sequence of protective group blocking. Amino groups were protected and then deprotected to permit two lysine residues to attach to the deprotected amino terminus, deprotection followed by lysine addition built a branched chain structure for peptide synthesis. Peptides with specific biological function or with sequences that are susceptible to enzymatic degradation were modified by the addition of D-amino acids. One particularly useful addition is the addition of L-alanine-D-isoglutamine with the peptide of interest synthesized off of the NH.sub.2 terminus of D-Isoglutamine. In another arrangement, the peptide was synthesized with L-Lysine-L-Lysine-peptide-D-isoglutamine. The carboxy terminal lysine groups are highly susceptible to enzyme degradation by many enzymes in the micro environment while D-isoglutamine both results in an increase in half life of the peptide and provides a hydrophobic site to assemble peptides that require amphipathic properties to elicit a function such as receptor binding and immune induction through MHC associated events. A tyrosine residue was added to the amino terminus for radioactive labeling with .sup.125 Iodine to determine peptide-to-carrier protein coupling efficiency and to identify the peptide during purification. .sup.125 I also provided a tracer to follow the half life of the peptide in biological systems and evaluate receptor binding when peptide function was not affected by tyrosine addition.

☐ 13. Document ID: US 6235716 B1

L4: Entry 13 of 29 File: USPT May 22, 2001

US-PAT-NO: 6235716
DOCUMENT-IDENTIFIER: US 6235716 B1
**** See image for Certificate of Correction ****

TITLE: Multivalent ligands which modulate angiogenesis

L4: Entry 13 of 29 File: USPT May 22, 2001

DOCUMENT-IDENTIFIER: US 6235716 B1

**** See image for Certificate of Correction ****

TITLE: Multivalent ligands which modulate angiogenesis

Detailed Description Text (106):

The synthesis of a tetra branched matrix core with an AHR- peptide attached was accomplished manually by a stepwise solid-phase procedure (Merrifield, R. B., J. Am. Chem. Soc., 85:2149-2154 (1963) on t-butoxycarbonyl (Boc) .beta.Ala-OCH.sub.2 - Pam resin (Mitchell, A. R., et al., J. Org. Chem., 43:2845-2852 (1978) in which 0.05 mmol of .beta.Ala is present in 0.5 g of resin. The synthesis of the first and every subsequent level of the carrier core was achieved using a 4 M excess of preformed symmetrical anhydride of N.sup..alpha.,N.sup..epsilon. -Boc-Lys(Boc) (0.2, 0.4, 0.8 and 1.6 mmol consecutively) in dimethylformamide (HCONMe.sub.2 12 ml/g resin) followed by a second coupling via dicyclohexylcarbodiimide alone in CH.sub.2 Cl.sub.2 to give, after deprotection, the tetra-branched core matrix containing four functional amino groups. The protecting groups for the synthesis of the peptide antigens were Boc groups for the a-amino termini and benzyl alcohol derivatives for most side-chain amino acids. For all residues except arginine, asparagine, glutamine, and glycine, the first coupling for 1 hour, monitored by quantitative ninhydin test (Sarin, V. K., et al., Anal. Biochem., 117:147-157 (1981) was done with the preformed symmetrical anhydride in CH.sub.2 Cl.sub.2, a second coupling in HCONMe.sub.2, and a third (if needed) in N-methylpyrrolidone at 50.degree. C. (Tam, J. P., in Proceedings of the Ninth American Peptide Symposium, eds. Deber, C. M., Kopple, K. D. and Hruby, V. J. (Pierce Chem., Rockford, Ill.) pp. 305-308 (1985)). The coupling of Boc-Asn and Boc-Gln was mediated by the preformed 1-hydroxybenzotriazole ester in HCONMe.sub.2. Boc-Gly and Boc-Arg were coupled with water-soluble dicyclohexylcarbodiimide alone to avoid, respectively, the risk of formation of dipeptide and lactam. To eliminate the polycationic amino groups, which give highly charged macromolecules, the peptide chains were capped on their .alpha.-amino group by acetylation if 3 mM acetic anhydride in HCONMe.sub.2 containing 0.3 mmol of N,N-dimethylaminopyridine at the completion of the multivalent ligand. The deprotection process was initiated by removing the dinitrophenyl protecting group of His(Dnp) with 1 M thiophenol in HCONMe.sub.2 for 8 hours (3 times and at 50.degree. C. if necessary to complete the rection). The branched peptide oligolysine was removed from the crosslinked polystyrene resin support with the low-high-HF method or the low-high trifluoromethane-sulfonic acid method of cleavage to yield the crude multivalent ligand (85%-93% clevage yield) (Tam, J. P., et al., J. Am. Chem. Soc., 108:5242-5251 (1986). The crude peptide and resin were then washed with cold ether/mercaptoethanol (99:1, vol/vol., 30 ml) to remove .rho.-thiocresol and .rho.-cresol, and the peptide was extracted with 100 ml of 8M urea/0.2 M dithiothreitol/0.1 M Tris-HCl buffer, pH 8.0. To remove all the remaining aromatic by-products generated in the cleavage step, the peptide was dialyzed in Spectrum Por 6 tubing, 1000 M, cutoff by equilibration for 24 hours with a deacrated and N.sub.2 -purged solution containing 8 M urea, 0.1 M NH.sub.4 HCO.sub.3 /(NH.sub.4).sub.2 CO.sub.3, pH 8.0, with 0.1 M mercaptoethanol at 0.degree. C. for 24 hours. The dialysis was then continued in 8 M and then in 2 M urea--all in 0.1 M NH.sub.4 HCO.sub.3 /(NH.sub.4).sub.2 CO.sub.3 buffer, pH 8.0 for 12 hours and then sequentially in H.sub.2 O and 1 M HOAc to remove all urea. The multivalent ligand was lyophilized and purified batchwise by high-performance gel-permeation or ion-exchange chromatography. All purified materials were analyzed and found to contain the predicted amino acid sequences.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 14. Document ID: US 6228372 B1

L4: Entry 14 of 29 File: USPT May 8, 2001

US-PAT-NO: 6228372
DOCUMENT-IDENTIFIER: US 6228372 B1

TITLE: Compounds and methods for the detection and prevention of T. cruzi infection

L4: Entry 14 of 29 File: USPT May 8, 2001

DOCUMENT-IDENTIFIER: US 6228372 B1
TITLE: Compounds and methods for the detection and prevention of T. cruzi infection

Detailed Description Text (84):
The four immunoreactive T. cruzi epitopes PEP-2, TcD, TcE and TcLo1.2 may also be linked into one reagent by the use of a `branched` peptide originating from a lysine core residue. Orthogonal protection of the lysine, for example employing 9-Fluorenylmethoxycarbonyl (Fmoc) on the a-amino group and 1-(4,4-Dimethyl-2,6-dioxocyclohex-1-ylidene)ethyl (Dde) on the E-amino group, is used to permit selective deprotection of one amino group in the presence of the other, thereby allowing the synthesis of the first peptide chain from either the .alpha.- or .epsilon.- group on the lysine. This first peptide chain is terminated with a protecting group that is not removed during the course of the synthesis of the second peptide chain. For example, a tert-Butoxy carbonyl (Boc) amino acid could be used with the Dde and Fmoc combination. The remaining lysine amino protecting group is then removed before a second amino acid chain is synthesized from the second amino moiety. For example, .epsilon.-Dde is removed with 20% hydrazine. Cleavage of the branched peptide from a solid support and removal of the N-.alpha.-Boc moiety is carried out using trifluoroacetic acid, following standard protocols. Using this approach two independent amino acid sequences can be built from a `core` lysine residue, as shown below, thus allowing various combinations of TcD, TcE, PEP2, TcLo1.2, and other epitopes to be coupled to the core residue. Purification of the resulting peptide is performed as described in Example 2. ##STR1##

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 15. Document ID: US 6217873 B1

L4: Entry 15 of 29 File: USPT Apr 17, 2001

US-PAT-NO: 6217873
DOCUMENT-IDENTIFIER: US 6217873 B1

TITLE: Polyoxime compounds and their preparation

L4: Entry 15 of 29 File: USPT Apr 17, 2001

DOCUMENT-IDENTIFIER: US 6217873 B1
TITLE: Polyoxime compounds and their preparation

Brief Summary Text (6):
Mutter et al. (Proteins:Structure, Function and Genetics (1989) 5:13-21) have synthesized branched chain polypeptides by step-wise coupling of protected amino acids to a synthetic, protected, resin-bound peptide template during solid-phase peptide synthesis. Deprotection and cleavage was required to obtain a soluble template-assembled synthetic protein. Also using step-wise, solid phase peptide synthesis, Tam and Zavala (J. Immunol. Meth. (1989) 124:5261) have built branched chain "lysine tree" templates with peptide branches, referred to as multiple antigen peptides, which were subsequently obtained in soluble, crude form after HF deprotection and cleavage.

☐ 16. Document ID: US 6174530 B1

L4: Entry 16 of 29 File: USPT Jan 16, 2001

US-PAT-NO: 6174530
DOCUMENT-IDENTIFIER: US 6174530 B1

TITLE: Homogeneous polyoxime compositions and their preparation by parallel assembly

L4: Entry 16 of 29 File: USPT Jan 16, 2001

DOCUMENT-IDENTIFIER: US 6174530 B1
TITLE: Homogeneous polyoxime compositions and their preparation by parallel assembly

Brief Summary Text (7):
Mutter et al. (Proteins:Structure, Function and Genetics (1989) 5:13-21) have synthesized branched chain polypeptides by step-wise coupling of protected amino acids to a synthetic, protected, resin-bound peptide template during solid-phase peptide synthesis. Deprotection and cleavage was required to obtain a soluble template-assembled synthetic protein. Also using step-wise, solid phase peptide synthesis, Tam and Zavala (J. Immunol. Meth. (1989) 124:52-61) have built branched chain "lysine tree" templates with peptide branches, referred to as multiple antigen peptides, which were subsequently obtained in soluble, crude form after HF deprotection and cleavage.

☐ 17. Document ID: US 6096710 A

L4: Entry 17 of 29 File: USPT Aug 1, 2000

US-PAT-NO: 6096710
DOCUMENT-IDENTIFIER: US 6096710 A

TITLE: Collagen-like peptoid residue-containing structures

L4: Entry 17 of 29 File: USPT Aug 1, 2000

DOCUMENT-IDENTIFIER: US 6096710 A
TITLE: Collagen-like peptoid residue-containing structures

Brief Summary Text (11):
Roth, W. et al. (1980) Biopolymers 19:1909-1917 has used lysine dimers and 1,2,3-propane carboxylic acid to prepare covalently bridged synthetic collagen model peptides which were found to assemble into a triple helix. Fields, C. G. et al. (1993) Biopolymers 33:1695-1707 and Tanaka, T. et al. (1993) FEBS 13257 334 (3) :272-276, have used two consecutively connected lysine residues with three functional amino groups to link three peptide chains at the C-termini or the N-termini. Fields et al. report the formation of thermally stable collagen-like polypeptide sequences in triple helical conformation by a solid phase procedure wherein three collagen-like peptide strands were synthesized in parallel from an origin at adjacent amine groups at the C-terminal. The branching of the peptide chains is reported to ensure the proper alignment or register of the chains in the triple helical polypeptide as they would be in native collagen.

☐ 18. Document ID: US 6054135 A

L4: Entry 18 of 29 File: USPT Apr 25, 2000

US-PAT-NO: 6054135
DOCUMENT-IDENTIFIER: US 6054135 A

TITLE: Compounds and methods for the detection and prevention of T. cruzi infection

L4: Entry 18 of 29 File: USPT Apr 25, 2000

DOCUMENT-IDENTIFIER: US 6054135 A
TITLE: Compounds and methods for the detection and prevention of T. cruzi infection

Detailed Description Text (82):
The four immunoreactive T. cruzi epitopes PEP-2, TcD, TcE and TcLo1.2 may also be linked into one reagent by the use of a `branched` peptide originating from a lysine core residue. Orthogonal protection of the lysine, for example employing 9-Fluorenylmethoxycarbonyl (Fmoc) on the .alpha.-amino group and 1-(4,4-Dimethyl-2,6-dioxocyclohex-1-ylidene)ethyl (Dde) on the .epsilon.-amino group, is used to permit selective deprotection of one amino group in the presence of the other, thereby allowing the synthesis of the first peptide chain from either the .alpha.- or .epsilon.- group on the lysine. This first peptide chain is terminated with a protecting group that is not removed during the course of the synthesis of the second peptide chain. For example, a tert-Butoxy carbonyl (Boc) amino acid could be used with the Dde and Fmoc combination. The remaining lysine amino protecting group is then removed before a second amino acid chain is synthesized from the second amino moiety. For example, .epsilon.-Dde is removed with 20% hydrazine. Cleavage of the branched peptide from a solid support and removal of the N-.alpha.-Boc moiety is carried out using trifluoroacetic acid, following standard protocols. Using this

approach two independent amino acid sequences can be built from a `core` lysine residue, as shown below, thus allowing various combinations of TcD, TcE, PEP2, TcLo1.2, and other epitopes to be coupled to the core residue. Purification of the resulting peptide is performed as described in Example 2. ##STR1##

☐ 19. Document ID: US 6043347 A

L4: Entry 19 of 29 File: USPT Mar 28, 2000

US-PAT-NO: 6043347
DOCUMENT-IDENTIFIER: US 6043347 A

TITLE: Compositions and methods for treating viral infections

L4: Entry 19 of 29 File: USPT Mar 28, 2000

DOCUMENT-IDENTIFIER: US 6043347 A
TITLE: Compositions and methods for treating viral infections

Detailed Description Text (81):
Butyloxycarbonyl-S-4-methylbenzyl-L-cystine coupled to polystyrene using dicyclohexylcarbodiimide with a catalytic amount of 4-N,N-dimethylaminopyridine was used as the solid-phase support for the synthesis. The amino groups were protected with tert-butyloxycarbonyl (t-BOC) and the side chain protecting groups were as follows: benzyl ether for the hydroxyl of serine, dichlorobenzyl ether for the phenolic hydroxyl of tyrosine, and the beta benzyl-esters were used for the carboxyl groups on glutamic acid and aspartic acid, respectively. Trifluoroacetic acid (40% in CH.sub.2 Cl.sub.2) was used to remove t-BOC and the resulting salt was neutralized with N-diisopropylethylamine (10% in CH.sub.2 Cl.sub.2). Diisopropylcarbodiimide was used to couple the t-BOC amino acids. The protecting groups were removed and the peptide was cleaved from the resin at 0.degree. degrees C. with anhydrous hydrogen fluoride containing 10% anisole and 1% ethanedithiol as scavengers. The hydrogen fluoride reagent was removed under vacuum at 0.degree. C. and the peptide then was precipitated and washed with anhydrous ether. After extraction of the peptide from the resin with trifluoroacetic acid, the solvent was evaporated to 15.degree. C. and the peptide was again precipitated with ether. The ether was decanted after centrifugation and the pellet was dissolved in 5% acetic acid with 6 M guanidine HCl. This solution was desalted on a BioGel P2 column equilibrated in 5% acetic acid and the peptide containing fractions were pooled and lyophilized. A cysteine residue was added to the carboxyl terminus of the peptide as needed to provide a functional SH group for the coupling of the peptide to carrier proteins or to a solid support for EIA procedures or to MDP (Example 5). When multiple repeats of the peptide were desired, synthesis was conducted by first attaching a cysteine residue to the resin support. Carbon spacers of various lengths were added; the choice of spacer length varied and was dependent on the application, peptide charge and length and steric influences predicted from preliminary data resulting from peptide attachments to supports. A six carbon spacer such as 6-aminohexanoic acid was first attached with lysine- (lysine)2-(lysine)4 additions as described above with diaminoethane in Example 5 but altering the sequence of protective group blocking. Amino groups were protected and then deprotected to permit two lysine residues to attach to the deprotected amino terminus, deprotection followed by lysine addition built a branched chain structure for peptide synthesis. Peptides with specific biological function or with sequences

that are susceptible to enzymatic degradation were modified by the addition of D-amino acids. One particularly useful addition is the addition of L-alanine-D-isoglutamine with the peptide of interest synthesized off of the NH.sub.2 terminus of D-Isoglutamine. In another arrangement, the peptide was synthesized with L-Lysine-L-Lysine-peptide-D-isoglutamine. The carboxy terminal lysine groups are highly susceptible to enzyme degradation by many enzymes in the micro environment while D-isoglutamine both results in an increase in half life of the peptide and provides a hydrophobic site to assemble peptides that require amphipathic properties to elicit a function such as receptor binding and immune induction through MHC associated events. A tyrosine residue was added to the amino terminus for radioactive labeling with .sup.125 Iodine to determine peptide-to-carrier protein coupling efficiency and to identify the peptide during purification. .sup.125 I also provided a tracer to follow the half life of the peptide in biological systems and evaluate receptor binding when peptide function was not affected by tyrosine addition.

☐ 20. Document ID: US 6001364 A

L4: Entry 20 of 29 File: USPT Dec 14, 1999

US-PAT-NO: 6001364
DOCUMENT-IDENTIFIER: US 6001364 A

TITLE: Hetero-polyoxime compounds and their preparation by parallel assembly

L4: Entry 20 of 29 File: USPT Dec 14, 1999

DOCUMENT-IDENTIFIER: US 6001364 A
TITLE: Hetero-polyoxime compounds and their preparation by parallel assembly

Brief Summary Text (7):
Mutter et al. (Proteins: Structure, Function and Genetics (1989) 5: 13-21) have synthesized branched chain polypeptides by step-wise coupling of protected amino acids to a synthetic, protected, resin-bound peptide template during solid-phase peptide synthesis. Deprotection and cleavage was required to obtain a soluble template-assembled synthetic protein. Also using step-wise, solid phase peptide synthesis, Tam and Zavala (J. Immunol. Meth. (1989) 124: 52-61) have built branched chain "lysine tree" templates with peptide branches, referred to as multiple antigen peptides, which were subsequently obtained in soluble, crude form after HF deprotection and cleavage.

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(L1 SAME L2 SAME L3).USPT.	29

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☐ 21. Document ID: US 5882645 A

L4: Entry 21 of 29 File: USPT Mar 16, 1999

US-PAT-NO: 5882645
DOCUMENT-IDENTIFIER: US 5882645 A

TITLE: Peptide compounds

L4: Entry 21 of 29 File: USPT Mar 16, 1999

DOCUMENT-IDENTIFIER: US 5882645 A
TITLE: Peptide compounds

Drawing Description Text (2):
FIG. 1 illustrates one embodiment of the invention, having a core comprising dendritically linked lysine residues, of two levels and this having four branches, to each of which branches is attached a peptide antigen, and the core being attached via a linker region to three linked fatty amino acid (FAA) residues which in turn are linked via a .beta.-Alanyl residue to a resin being the resin used in the solid phase synthesis of the peptide. The peptide antigen moieties may be the same or different. The .beta.-ala residue can be omitted.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw D

☐ 22. Document ID: US 5834020 A

L4: Entry 22 of 29 File: USPT Nov 10, 1998

US-PAT-NO: 5834020
DOCUMENT-IDENTIFIER: US 5834020 A

TITLE: Dendrimeric compounds

L4: Entry 22 of 29 File: USPT Nov 10, 1998

DOCUMENT-IDENTIFIER: US 5834020 A
TITLE: Dendrimeric compounds

Detailed Description Text (51):
Solid phase peptide synthesis (SPPS) is used to fabricate oligomeric lysine units

in a fashion similar to that used to make small branched homo-lysine peptides (see Tam, Proc. Natl. Acad. Sci. USA, 85, 5409, (1988); Denkewalter et al. U.S. Pat. No. 4,289,872; Tam, WO 90/11778).

☐ 23. Document ID: US 5763160 A

L4: Entry 23 of 29 File: USPT Jun 9, 1998

US-PAT-NO: 5763160
DOCUMENT-IDENTIFIER: US 5763160 A

TITLE: Synthetic peptides and process of using same for the detection of antibodies to human immunodeficiency virus (HIV) gp120 envelope protein, diagnosis of AIDS and pre-AIDS conditions and as vaccines

L4: Entry 23 of 29 File: USPT Jun 9, 1998

DOCUMENT-IDENTIFIER: US 5763160 A
TITLE: Synthetic peptides and process of using same for the detection of antibodies to human immunodeficiency virus (HIV) gp120 envelope protein, diagnosis of AIDS and pre-AIDS conditions and as vaccines

Detailed Description Text (21):
The synthesis of an octameric form of Peptide 126 and Peptide 127 was initiated on a 4-methylbenzhydrylamine (MBHA) resin onto which three successive cycles of Boc-Lys (BOZ), i.e., di-t-Boc Lys, coupling were conducted to generate a branching Lys peptide core with eight reactive amino ends. The synthesis of Peptide 126 or Peptide 127 on this octameric lysine resin with eight reactive amino ends thereafter was similar to the synthesis of a linear peptide using a standard solid phase peptide synthesis strategy. The poly-L-lysine with eight units of Peptide 126 or Peptide 127 (see Tables VIa and VIb) were then liberated from the solid phase resin by the HF cleavage procedure, extracted with acetic acid and the octameric peptide lyophilized. The molecular weight of the resulting octameric peptides as determined by SDS-PAGE correlated well with the respective calculated molecular weights of 26,600 and 31,200. Analysis of the HF cleaved octameric Peptide 126 and Peptide 127 both gave broad peaks in C4 reverse phase HPLC.

☐ 24. Document ID: US 5726243 A

L4: Entry 24 of 29 File: USPT Mar 10, 1998

US-PAT-NO: 5726243
DOCUMENT-IDENTIFIER: US 5726243 A
**** See image for Certificate of Correction ****

TITLE: Mild solid-phase synthesis of aligned, branched triple-helical peptides

L4: Entry 24 of 29 File: USPT Mar 10, 1998

DOCUMENT-IDENTIFIER: US 5726243 A
**** See image for Certificate of Correction ****
TITLE: Mild solid-phase synthesis of aligned, branched triple-helical peptides

Brief Summary Text (7):
Such liquid- and solid-phase methodologies do not allow for the incorporation of glycosylated residues, as O-glycosidic bonds are not stable to repetitive moderate acidolysis and strong acid cleavage conditions. Glycosylated 5-hydroxy-L-lysine (Hyl) residues are found in regions of collagen-mediated biological activities such as cell adhesion and migration and heparin binding. Glycosylation also effects protein secondary structure, inducing .beta.-turns in single-stranded peptides. Solid-phase peptide synthesis utilizing base-labile 9-fluorenylmethoxycarbonyl (Fmoc)-amino acids has become increasingly popular due to the fairly mild chemical conditions employed, which permit efficient incorporation of glycosylated residues. See, for example, G. B. Fields et al., Int. J. Peptide Protein Res. 35, 161 (1990). In addition, other acid labile residues, such as Trp or .sup.2 H-labeled amino acids (for NMR studies), are more efficiently incorporated by Fmoc chemistry than standard tertiary-butyloxycarbonyl (Boc) chemistry. Recent advances in Fmoc chemistry, including the development of three-dimensional orthogonal schemes, has permitted the design of synthetic protocols for the mild solid-phase synthesis of branched, triple-helical peptides. Triple-helical peptides synthesized under these mild contritions are far less likely to be contaminated by by-products as well as potentially incorporating the greatest variety of unusual and non-native amino acid residues.

Other Reference Publication (6):
B.W. Bycroft et al., "A Novel Lysine-protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides," J. Chem. Soc., Chem. Commun., 778-779 (1993).

☐ 25. Document ID: US 5674977 A

L4: Entry 25 of 29 File: USPT Oct 7, 1997

US-PAT-NO: 5674977
DOCUMENT-IDENTIFIER: US 5674977 A

TITLE: Branched synthetic peptide conjugate

L4: Entry 25 of 29 File: USPT Oct 7, 1997

DOCUMENT-IDENTIFIER: US 5674977 A
TITLE: Branched synthetic peptide conjugate

Detailed Description Text (28):
Octopeptide 5 is a branched peptide containing the DNA intercalator acridine (Acr) that is able to cross the cytoplasmic membrane of cells and accumulate in the cell nucleus. Octopeptide 5 is composed of eight N-terminal branches and one C-terminal arm. The branches are identical and composed of a linear arrangement of three domains; the DNA intercalator agent acridine (Acr; D.sup.3), a 12-amino acid sequence of the SV40 large T antigen that is responsible for the nuclear

translocation of this protein (NLS; nuclear localization signal; D.sup.2) and a 5-residue linear lysine repeat (CTS, cytoplasm translocation signal; D.sup.1). These branches are linked to a branched polymer (BP) via a junctional segment (J.sup.1) composed of two glycine residues. BP is created after three successive couplings of L-lysine during solid-phase peptide synthesis. The efficiency of the peptide to cross the cytoplasmic membrane is dependent on the level of cationic charges present on the peptide. The presence of 8 branches carrying the CTS repeat dramatically augments the rate of entry of the branched peptide into cells when compared to an individual branch (i.e., peptide 1). The C-terminal arm (J.sup.4) is composed of three residues used in the analytical evaluation of the construct; tyrosine can be radiolabeled and its absorbance measured at 280 nm, glycine and .beta.-alanine are amino acid standards to monitor the concentration and amino acid composition of the construct.

Detailed Description Text (29):
Octopeptide 5 was prepared by solid phase peptide synthesis on an automated Applied Biosystems model 430A Peptide Synthesizer using t-Boc protected amino acids and PAM (phenylacetamidomethyl) resin supports. A similar octopeptide can be generated using Fmoc amino acids and acid sensitive resin supports. Unless indicated, all coupling steps were carried out for 1 to 2 hours at room temperature using symmetric anhydride derivatives of protected amino acids dissolved in dimethylformamide. Each coupling step was then repeated in 10% (v/v) hexafluoroisopropanol in dichloromethane. In the case of arginine and glutamine derivatives, HOBt esters were prepared in dimethylformamide and the coupling step carried out in the same solvent. All synthesis protocols employed were those established by the manufacturer (Applied Biosystems, Foster City, Calif.). Each coupling step was monitored by the quantitative determination of free amino groups present on the resin (quantitative ninhydrin test). Typically, the efficiency of each coupling step was greater than 99%. The first residue coupled to the PAM resin was .beta.-alanine (.beta.-aminopropionic acid) and the substitution on the resin support was 0.1 mmole/gram of resin. The initial low substitution value on the resin insures that crowding on the resin with peptide chains will not occur as a result of three branching steps (i.e., maximal substitution of 2.sup.3 .times.0.1 mmole=0.8 mmole/gram of resin). The .beta.-alanine serves as an internal standard. The second and third residues were glycine and tyrosine respectively and constitute with .beta.-alanine, an analytical spacer arm that permits one to assess the quality of the synthesis (post-synthesis amino acid analysis) and the concentration of the polymer (tyrosine side chain absorbs strongly at 280 nm and can be readily radiolabeled with iodine isotopes) in solution. The fourth residue was N.alpha.(Boc),N.epsilon.(Boc)-lysine, an amino acid having its amino groups at the C.alpha. and C.epsilon. positions protected with acid labile Boc protecting groups. After deprotecting these sites with TFA, branching is initiated by coupling two equivalents of N.alpha.(Boc),N.epsilon.(Boc)-lysine to the two available amino positions. After another round of acid deprotection, the branching step was repeated with this time four amino sites available for coupling. N.alpha.(Boc),N.epsilon.(Boc)-lysine was coupled again. The Boc groups on the completed BP domain were deprotected with TFA to expose 8 free amino groups thus allowing the construction of 8 N-terminal arms (n=8). Two glycine(Boc) residues were successively coupled again to act as a spacer (J.sup.1) before introducing five consecutive N.alpha.(Boc),N.epsilon.(2-Cl-Z)-L-lysine groups. These 5 lysine residues (SEQ ID NO:2) constitute a domain (D.sup.1) called the cytoplasm translocation signal or CTS. The presence of 8 of these CTS domains in octopeptide 5 results in a final molecule with a high level of cationic charges and a potential for this octopeptide to be rapidly internalized by cells. The following 12-amino acid sequence (domain D.sup.2) was then introduced; Thr-Pro-Pro-Lys-Lys-Lys-Arg-Lys-Val-Glu-Asp-Pro (SEQ ID NO:1). This sequence represents a nuclear localization signal or NLS (residues 124 to 135) for the protein known as the SV40 large T antigen. The NLS antigen was added to each branch in a stepwise fashion with each amino acid in this sequence being coupled one at the time to the growing peptide chain starting with proline-135 (the synthesis is proceeding from the C-terminus to

the N-terminus). As the name suggests, the presence of the NLS domain (D.sup.2) allows octopeptide 5 to be selectively transported to the nucleus of cells. Although 8 NLS domains are present in this octopeptide construct, a single NLS domain should be sufficient to target this molecule to the nucleus of cells. Junctional segments J.sup.2 and J.sup.3 are absent in octopeptide 5. The final domain introduced in octopeptide 5 is the acridine moiety (D.sup.3). The Boc group of threonine-124 was removed in TFA to expose its N.alpha. amino group. The peptide-resin was resuspended in 9-phenoxyacridine dissolved in hot dried/recrystallized phenol and the resulting slurry was mixed with a stirring bar at 80.degree. C. for 16 hours. This coupling step typically exceeded 98% coupling efficiency as determined by ninhydrin analysis of residual free amino groups on the resin. Finally, octopeptide 5 was detached from the support by exposing the peptide-resin to anisole:dimethylsulfide:anhydrous hydrogen fluoride (1:1:10) for 90 minutes at -5.degree. C. The resin was extracted with several ether washes to remove anisole, dimethylsulfide and cleaved protecting groups. The branched peptide was then recovered by extracting the resin with 50% (v/v) acetic acid and lyophilized.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw De

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☐ 26. Document ID: US 5599912 A

L4: Entry 26 of 29 File: USPT Feb 4, 1997

US-PAT-NO: 5599912
DOCUMENT-IDENTIFIER: US 5599912 A

TITLE: Compounds and methods for suppressing an immune response to sulfomethoxozale containing substances

L4: Entry 26 of 29 File: USPT Feb 4, 1997

DOCUMENT-IDENTIFIER: US 5599912 A
TITLE: Compounds and methods for suppressing an immune response to sulfomethoxozale containing substances

Detailed Description Text (40):
A dendritic peptide capable of accommodating the incorporation of SMX moieties was prepared by manual solid-phase peptide synthesis on a commercially available methyl benzhydryl amine (MBHA)-resin using N-tert-butyloxycarbonyl (Boc)-protected glycine (Gly), D-lysine (D-Lys) at .beta.-alanine (.beta.-Ala) as the protected amino acid derivatives, and dicyclohexylcarbodiimide/1-hydroxybenzotriazole (DCC/HOBt) preactivation (Barany et al., Int.J.Peptide Protein Res.: (30), 705-39 (1987)) . Stepwise addition of N-tert-butyloxycarbonyl-glycine residues to the D-lysine-generated "branch points" and cleavage from the resin resulted in the production of the branched peptide: Gly.sub.8 D-Lys.sub.4 Gly.sub.4 D-Lys.sub.2 Gly.sub.2 D-Lys-.beta.-Alanine amide 14. ##STR15##

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw De

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☐ 27. Document ID: US 5591717 A

L4: Entry 27 of 29 File: USPT Jan 7, 1997

US-PAT-NO: 5591717
DOCUMENT-IDENTIFIER: US 5591717 A
**** See image for Certificate of Correction ****

TITLE: Branched apogenic peptide for inducing apoptosis

L4: Entry 27 of 29 File: USPT Jan 7, 1997

DOCUMENT-IDENTIFIER: US 5591717 A
**** See image for Certificate of Correction ****
TITLE: Branched apogenic peptide for inducing apoptosis

Detailed Description Text (27):
The branched apogenic peptides and the branched non-apogenic peptides were constructed according to the method in Tam et al., "Multiple Antigen Peptide,"J. Immun. Meth., 124:53, (1989); and Yi-Ann et al., "Chemically Unambiguous Peptide Immunogens," Mol. Immun., 28:623, (1991); using an Applied Biosystems 430A automated synthesizer operating on an initial scale of 0.20 to 0.25 mol, according to the manufacturer's instructions. First, the lysine core was synthesized by attaching a single lysine molecule to the solid phase support peptidylphenylacetamidomethyl-polystyrene resin and deprotecting both the .alpha. and Epsilon amino groups of the first lysine molecule. The second tier was constructed when a second and third lysine molecule were attached via their carboxyl groups to each amino group of the first lysine residue. The .alpha. and Epsilon amino groups of the second and third lysine molecules were deprotected to provide a total of four amino groups. The third tier was constructed when four more lysine molecules were attached to the four amino groups to produce a core of seven lysine molecules. The .alpha. and Epsilon amino groups of the third tier were deprotected to provide eight free amino groups. Eight peptide chains were attached via the terminal carboxyl group to the eight free amino groups.

☐ 28. Document ID: US 5576419 A

L4: Entry 28 of 29 File: USPT Nov 19, 1996

US-PAT-NO: 5576419
DOCUMENT-IDENTIFIER: US 5576419 A
**** See image for Certificate of Correction ****

TITLE: Mild solid-phase synthesis of aligned branched triple-helical peptides

L4: Entry 28 of 29 File: USPT Nov 19, 1996

DOCUMENT-IDENTIFIER: US 5576419 A
**** See image for Certificate of Correction ****
TITLE: Mild solid-phase synthesis of aligned branched triple-helical peptides

Brief Summary Text (7):

Such liquid- and solid-phase methodologies do not allow for the incorporation of glycosylated residues, as O-glycosidic bonds are not stable to repetitive moderate acidolysis and strong acid cleavage conditions. Glycosylated 5-hydroxy-L-lysine (Hyl) residues are found in regions of collagen-mediated biological activities such as cell adhesion and migration and heparin binding. Glycosylation also effects protein secondary structure, inducing .beta.-turns in single-stranded peptides. Solid-phase peptide synthesis utilizing base-labile 9-fluorenylmethoxycarbonyl (Fmoc)-amino acids has become increasingly popular due to the fairly mild chemical conditions employed, which permit efficient incorporation of glycosylated residues. See, for example, G. B. Fields et at., Int. J. Peptide Protein Res. 35, 161 (1990). In addition, other acid labile residues, such as Trp or .sup.2 H-labeled amino acids (for NMR studies), are more efficiently incorporated by Fmoc chemistry than standard tertiary-butyloxycarbonyl (Boc) chemistry. Recent advances in Fmoc chemistry, including the development of three-dimensional orthogonal schemes, has permitted the design of synthetic protocols for the mild solid-phase synthesis of branched, triple-helical peptides. Triple-helical peptides synthesized under these mild conditions are far less likely to be contaminated by by-products as well as potentially incorporating the greatest variety of unusual and non-native amino acid residues.

Other Reference Publication (9):
B. W. Bycroft et al., "A Novel Lysine-protecting Procedure for Continuous Flow Solid Phase Synthesis of Branched Peptides," J. Chem. Soc., Chem. Commun., 778-779 (1993).

☐ 29. Document ID: US 4159979 A

L4: Entry 29 of 29 File: USPT Jul 3, 1979

US-PAT-NO: 4159979
DOCUMENT-IDENTIFIER: US 4159979 A

TITLE: Protected amino acids or peptides

L4: Entry 29 of 29 File: USPT Jul 3, 1979

DOCUMENT-IDENTIFIER: US 4159979 A
TITLE: Protected amino acids or peptides

Brief Summary Text (2):
In the production of a peptide, where amino acids having an .omega.-amino group, e.g. lysine, ornithine, .alpha., .gamma.-diaminobutyric acid, .alpha., .beta.-diaminopropionic acid or the like are among the constituent amino acid residues of the peptide, the side chain .omega.-amino group must be protected by means of a suitable protective group in the course of production to preclude side reactions. Moreover, an ideal protective group for this purpose must be such that it remains stable in the removal of .alpha.-amino groups which is generally performed in intermediate stages, and can be completely removed in a final stage. Nonetheless, the techniques generally practiced today for the protection of .omega.-amino groups fail to completely satisfy the above requirements and, rather, have a number of disadvantages. It is our impression that this is because generally the protection has been sought in the use of urethane type compounds which, by nature, offer unsatisfactory selectivity to cleave the protective groups. For example, in solid-

phase synthesis, it is common practice to protect an .alpha.-amino group with t-butoxycarbonyl and an .omega.-amino group with carbobenzoxy but the cleavage reaction for the removal of t-butoxycarbonyl in .alpha.-position is accompanied by a cleavage, to a certain extent, of the carbobenzoxy group in .omega.-position which contributes to the formation of by-products such as branched peptides which, in turn, add up to fairly large proportions of impurities. In attempts to obtain improvements, 2-chlorobenzyloxycarbonyl and diisopropylmethyloxycarbonyl have been developed. However, these groups are difficult to remove completely and, in their removal with hydrogen fluoride, require a prolonged treatment or a treatment at a high temperature, thus exerting an untoward influence upon the peptide as such. All of this seems to be attributable to the poor selectivity of the urethane type of protection and, in view of this, we studied the sulfonamide type of protective groups. This invention is a result of the above studies.

Term	Documents
(1 SAME 3 SAME 2).USPT.	29
(L1 SAME L2 SAME L3).USPT.	29